

A Conchostracan from the Carboniferous Ducabrook Formation

The Lower Carboniferous Ducabrook Formation in the Drummond Basin, central Queensland contains a diverse fauna including fish and tetrapod remains (Thulborn et al. 1996, Warren & Turner, 2004). The formation was deposited in paralic and estuarine environments (Parker & Webb 2008). Although invertebrate remains are less common than those of vertebrates, molluscs, ostracodes and conchostracans are known. This note describes the conchostracans from near the Ducabrook Station, south of Bogantungan, approximately 350 km west of Rockhampton. Biostratigraphic control on the sequence was provided by Playford (1977, 1978, 1985) who indicated a late Viséan age for the Ducabrook Formation.

Systematic Palaeontology

Order CONCHOSTRACA Sars, 1867

Suborder SPINICAUDATA Linder, 1945

Superfamily CYZICOIDEA Stebbing, 1910

Family LIOESTHERIIDAE Raymond, 1946

Lioestheria Depéret & Mazeran, 1912

Lioestheria sp. (Fig. 1)

Material. QMF54809, left valve; QMF54810, right valve; QMF54811, conjoined valves; all from QML1117, Ducabrook Formation, Carboniferous (Viséan) near Ducabrook Station, S. of Bogantungan, central Queensland.

Description. Valves 7–8 mm long, elliptical with width approximately two-thirds of length; umbo small, subterminal, approximately one-fifth of the length of the valve in from point of maximum anterior bulge. Hingeline long, occupying the middle two thirds of the dorsal margin; valve slightly asymmetrical about the midline transverse axis (perpendicular to dorsal margin), with a slightly narrower tapering to the point of maximum posterior bulge giving the valve an 'arrowhead' appearance. Maximum ventral bulge located approximately one-third of the length of the valve from the anterior. Growth bands comarginal, distinct, rugose and number 13–14 per valve (in specimens under discussion, with larger valves having more bands), more pronounced and closely spaced at anterior margin. Region near umbo with one or two growth bands. Micro-ornament not preserved.

Remarks. The material is similar to *Palaeolimnadia* (*Grandilimnadia*) *arcoensis* Tasch & Jones 1979 from the Lower Triassic Mount Goodwin Formation in the Bonaparte Basin, northwestern Australia (see Mory 1991). It can be distinguished by significantly fewer growth bands, and an extended hingeline, both features absent in *P. arcoensis*. *Palaeolimnadia* (*Grandilimnadia*) *profunda* Tasch & Jones 1979, also from the Mount Goodwin Formation lacks an extended hingeline, has growth lines near parallel to the dorsal margin for most of the valve length, unlike the Ducabrook specimens. The Ducabrook specimens are close to *Cyzicus* (*Lioestheria*) sp. undet. 1 Tasch 1979 from the Carboniferous Anderson Formation in the Canning Basin but are distinguished by being more asymmetrical about the midline transverse axis.



FIG. 1. *Cyzicus* (*Lioestheria*) sp., A. QMF54809, left valve, scale bar = 1 mm. B. QMF54810, right valve, scale bar = 1 mm. C. QMF54811, left and right valve, scale bar = 1 mm.

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LITERATURE CITED

- Audouin, V. 1837. Communications, *In Société Entomologique de France, Annales* 5:5–516. Entomologie Bulletin, 1ère trimestre, Session 1: ix–xi.
- Depéret, C & Mazeran, P. 1912. Les Estheria du Permian d'Autun. *Société d'Histoire Naturelle d'Autun Bulletin* 25:165–173.
- Mory, A.J. 1991. Geology of the offshore Bonaparte Basin, northwestern Australia. *Geological Survey of Western Australia Report* 29:1–47.

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- Parker, K.E. & Webb, J.A. 2008. Estuarine deposition of a mid-Viséan tetrapod unit, Ducabrook Formation, central Queensland: Implications for tetrapod dispersal. *Australian Journal of Earth Sciences* **55**: 509-530.
- Playford, G. 1977. A Lower Carboniferous palynoflora from the Drummond Basin, East-Central Queensland. *Proceedings of the Royal Society of Queensland* **88**: 75-81.
1978. Lower Carboniferous spores from the Ducabrook Formation, Drummond Basin, Queensland. *Palaontographica. Abteilung B*: **167**: 105-160.
1985. Palynology of the Australian Lower Carboniferous; a review. *Compte Rendu - Congres International de Stratigraphie et de Geologie du Carbonifere - International Congress on Carboniferous Stratigraphy and Geology*: **10**: 247-265.
- Raymond, P. 1946. The Genera of Fossil Conchostraca—an order of bivalved crustacea. *Journal of Paleontology* **30**: 1248-1257.
- Tasch, P. 1979. Permian and Triassic Conchostraca from the Bowen Basin (with a note on a Carboniferous leaiid from the Drummond Basin), Queensland. *Bureau of Mineral Resources, Geology and Geophysics Bulletin* **185**: 31-43.
- Tasch, P. & Jones, P.J. 1979. Permian and Triassic Conchostraca from the Bowen Basin (with a note on a Carboniferous leaiid fro the Drummond Basin), Queensland. *Bureau of Mineral Resources, Geology and Geophysics Bulletin* **185**: 31-43.
- Thulborn, T., Warren, A., Turner, S. & Hamley, T. 1996. Early Carboniferous tetrapods in Australia. *Nature* **381**: 777-780.
- Warren, A. & Turner, S. 2004. The first stem tetrapod from the Lower Carboniferous of Gondwana. *Palaontology* **47**: 151-184.
- Peter J. Bishop, Queensland Museum, Geosciences, 122 Gerler Rd, Hendra Q. 4011, Australia. 3 December 2009.